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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,715	05/24/2004	Kuo-Hsing Cheng	11586-US-PA	3714
31561 7590 06/18/2008 JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN				
EXAMINER MOON, SEOKYUN				
ART UNIT 2629		PAPER NUMBER		
NOTIFICATION DATE 06/18/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

Office Action Summary

Application No.

10/709,715

Applicant(s)

CHENG, KUO-HSING

Examiner

SEOKYUN MOON

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. The Applicant's arguments with respect to newly amended claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

Remark

2. The subject matter of the instant invention might be different and distinguishable from the prior arts of record, but Examiner respectfully submits that such subject matter is not presented in the claims adequately.

Claim Objections

3. **Claims 3, 5, and 7** are objected to because of the following informalities:

- Claims 3 and 7: "*a number of the pixels of each of the pixel set is $3 \times M$* "

For further examination purpose, it will be interpreted as, "*a number of the pixels of each of the pixel sets is $3 \times M$* ".

- Claim 5 Line 15 – "*gates line*"

For further examination purpose, it will be interpreted as, "*gate lines*"

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 2005/0083279) in view of Noguchi (US 7,084,849).

As to **claim 1**, Lee teaches a driving method for a pixel array [fig. 3], at least one row of the pixel array comprising a plurality of pixel sets (note that the display of Lee includes a plurality of parts having a structure shown on fig. 3 and drawing 1 is provided on page 4 of this Office Action for illustration of the plurality of parts having the structure), and at least one of the pixel sets comprising a plurality of pixels (three consecutive pixels), the driving method [drawing 1, which is equivalent to fig. 3] comprising:

driving pixels $PI(x,y)$, $PK(x+1,y+1)$, $PI(x,y+2)$, ..., $PK(x+1,y+W-2)$, $PI(x,y+W-1)$, $PJ(x,y+W)$, $PL(x+1,y+W+1)$, $PJ(x,y+W+2)$, ..., $PL(x+1,y+2W-2)$, $PJ(x,y+2W-1)$ by a first gate line (" G_n-I "), wherein K th, J th, and L th pixel sets adjacent to the I th pixel set comprise W pixels respectively, wherein a I th pixel set comprises W pixels, a pixel of the I th pixel set in x th row and y th column is expressed as $PI(x,y)$ and I , W , x , y , K , J , and L are integers; and

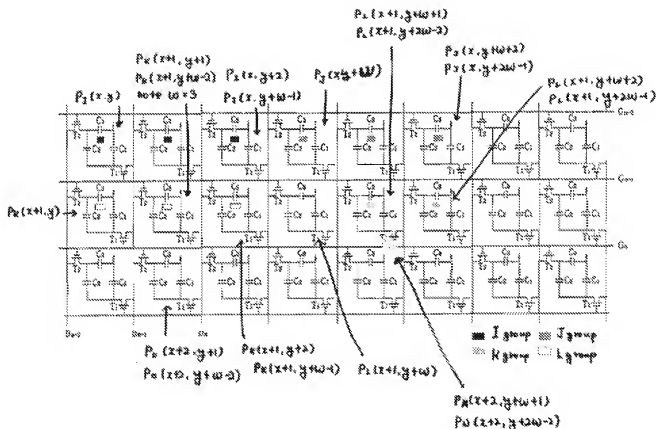
driving pixels, $PK(x+1,y)$, $PO(x+2,y+1)$, $PK(x+1,y+2)$, ..., $PO(x+2,y+W-2)$, $PK(x+1,y+W-1)$, $PL(x+1,y+W)$, $PN(x+2,y+W+1)$, $PL(x+1,y+W+2)$, ..., $PN(x+2,y+2W-2)$, $PL(x+1,y+2W-1)$ by a second gate line (" G_n "), wherein O th and N th pixel sets adjacent to the K th and L th pixel sets comprise W pixels, and O , N are integers.

Lee does not expressly teach the method comprising providing a plurality of voltages having substantially same phase to a plurality of pixel electrodes of the pixels of one of the pixel sets and providing at least two voltages with phases substantially opposite to each other to the pixel electrodes of the pixels of two of the adjacent pixel sets respectively.

However, Noguchi teaches a concept of using three-dots polarity inversion method to drive a liquid crystal display panel [col. 12 lines 32-36], wherein the three-dots polarity inversion method provides a plurality of voltages having substantially same phase to a plurality of pixel electrodes of the pixels of a pixel set (the pixel set comprising R, G, B pixels) and provides at least two voltages with phases substantially opposite to each other to the pixel electrodes of the pixels of two of the adjacent pixel sets respectively.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the driving method of Lee to use three-dots polarity inversion method, as taught by Noguchi, in order to prevent changes on the polarizations of liquid crystals caused by applying data voltages having same polarity to the pixels for a long time period.

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Drawing 1

As to **claim 2**, Lee as modified by Noguchi teaches each of the pixel sets comprising three pixels [drawing 1 provided above].

As to **claim 3**, Lee as modified by Noguchi teaches a number of the pixels of each of the pixel sets being $3 \times M$, wherein M is a positive integer [drawing 1 provided above].

6. **Claims 5-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US 6,982,690) in view of Noguchi.

As to **claim 5**, Lee teaches a driving method for a pixel array [fig. 8c], the pixel array comprising a plurality of pixels, the pixel array corresponding to a plurality of gate lines ("Sm", "Sm+1", "Sm+2", ...) and a plurality of data lines ("Dn", "Dn+1", "Dn+2", ...), the pixels

respectively corresponding to a plurality of pixel electrodes (the electrodes applying data voltages to the liquid crystals included in the pixels), the driving method comprising:

grouping the pixels in each row into a plurality of pixel sets (“*PU1*”, “*PU2*”, ...) logically;

driving two adjacent pixels (“*P3(m,n)*” and “*P1(m,n+1)*”) in two of the pixel sets (“*PU1*” and “*PU2*”) in the same row respectively by the same gate line (“*Sm*”);

driving a first pixel (“*P1(m,n)*”) and a second pixel (“*P2(m,n)*”) in the same pixel set (“*PU1*”) by two different gate lines (“*Sm+2*” and “*Sm+2*”) respectively, wherein the first pixel and the second pixel are in two adjacent columns respectively; and

driving the pixels in each column respectively by the same data lines,
wherein when the gate lines are sequentially enabled [fig. 7].

Lee does not expressly teach that the driving polarities of the pixel electrodes of the pixels in the same pixel set are substantially the same and the driving polarities of the pixel electrodes of the pixels respectively in the adjacent pixel sets are substantially opposite to each other.

However, Noguchi teaches a concept of using three-dots polarity inversion method to drive a liquid crystal display panel [col. 12 lines 32-36], wherein the three-dots polarity inversion method causes the driving polarities of pixel electrodes of R, G, B, pixels included in a pixel set to be same and the driving polarities of pixel electrodes of pixels in different pixel sets to be opposite to each other.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the driving method of Lee to use three-dots polarity inversion method, as taught by

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Noguchi, in order to prevent changes on the polarizations of liquid crystals caused by applying data voltages having same polarity to the pixels for a long time period.

Lee as modified by Noguchi inherently teaches the driving polarities of the adjacent data lines are opposite to each other since the two adjacent data lines driving two different pixel sets have opposite polarities.

As to **claim 6**, Lee teaches each of the pixel sets comprising three pixels [fig. 8c].

As to **claim 7**, Lee teaches a number of the pixels of each of the pixel sets being $3 \times M$, wherein M is a positive integer [fig. 8c].

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEOKYUN MOON whose telephone number is (571)272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 12, 2008

/S. M./

Examiner, Art Unit 2629

/Sumati Lefkowitz/

Supervisory Patent Examiner, Art Unit 2629